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ABSTRACT

A procedure is described for recording dyadic social interactions between family members. The procedure is presented within the context of general considerations for recording behavior, and the specific rationale underlying the present technique is given. Functional definitions for several behavior categories are included and an example of how the technique might be applied to an individual treatment case is presented. The recording procedure should provide family workers in both research and applied settings with a functional tool for identifying problem behaviors, as well as describing some of the antecedent and consequent stimulus events which might be contributing to their maintenance within a family. (Author)

The Response-Class Matrix: A Procedure for Recording Parent-Child Interactions[1]

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Abstract

A procedure is described for recording dyadic social interactions between family members. The procedure is presented within the context of general considerations for recording behavior, and the specific rationale underlying the present technique is given. Functional definitions for several behavior categories are included and an example of how the technique might be applied to an individual treatment case is presented. The recording procedure should provide family workers in both research and applied settings with a functional tool for identifying problem behaviors, as well as describing some of the antecedent and consequent stimulus events which might be contributing to their maintenance within a family.

General Considerations in Recording Behavior

A strong emphasis on the systematic observation and recording of specific behaviors is inextricably bound to the growing body of treatment techniques that fall under the behavior modification rubric. Behavior modification as a clinical approach may be characterized by the following: a strict emphasis on observable (measurable) behavior, a stress on current environmental events as they relate to maintaining both adaptive and maladaptive behavior, control of behavior through the systematic arrangement of environmental contingencies (reinforcers), and objective evaluation of treatment through demonstration of behavior change.

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We are indebted to many (too numerous to mention) for their ideas and suggestions in developing the procedures, and the efforts of these people are gratefully acknowledged.

[2]A brief report of this paper appears in the Journal of Consulting and Clinical Psychology, 1973, 40, 163-164.

These characteristics place certain demands on the behavior therapist. Specifically, the behavior therapist must define the behavior that he is dealing with, must plan for unbiased observation and recording of these behaviors, and must demonstrate that his observations and recordings attain at least some minimal level of inter-rater reliability (Gelfand and Hartmann, 1968; Kanfer and Saslow, 1968).

One advantage of providing for objective observation and recording of behavior is that such records make it possible to pinpoint specific treatment goals. The therapist is often given an ambiguous or distorted account of the presenting problem. This may be especially true when dealing with children, where secondary sources such as parents or teachers are involved (Yarrow, Campbell and Burton, 1968). For instance, pre-existing biases may cause the one presenting the problem to give an inaccurate account of the actual behaviors that are occurring. Also, there may be a tendency to under- or overestimate the frequency with which certain behaviors occur, as well as difficulty in trying to relate the occurrence of certain behaviors to specific environmental events. For example, a mother may give an inconsistent account on two occasions, even when talking with the same therapist. Furthermore, two parents may present different accounts, and the nature of the problem may be quite different depending upon who is presenting the problem. The information reported to a therapist may also differ as a function of the setting in which the informant had contact with the child (e.g., school vs. home).

Yarrow, Campbell and Burton (1968) in a study on research methodology in child rearing, reported finding little relationship between a mother's verbal report of dependency and a teacher's rating of dependency ($r = .29$). They also reported a correlation of only .33 between a combined teacher rating on child aggression with a rating based on mother's interview. Yarrow et al. (1968) also challenge the current trend to base treatment and research strategies on verbal report: "...there is little comfort for assuming that ratings labeled the same in a parental interview and in direct observation are calibrating the same aspects of behavior (p. 119)." Through an objective observation and recording system the therapist should find it easier to delineate his treatment objectives.

The recording of behavior provides the therapist with a technique for monitoring the effectiveness of his treatment procedures. When early goals are reached, the therapist and his client can plan an approach to new goals. Should initial goals be elusive, the therapist's records provide immediate feedback information with which decisions can be made about the re-adjustment of goals to more obtainable targets. An objective recording system minimizes the possibility that the particular biases of the therapist will cause him to see changes, when in actuality none have occurred. Too often, the success or failure of a treatment procedure is based upon the therapist's selective perception and use of limited amounts of information which he obtains from his client. Objective records help to circumvent this problem, since the treatment goals are directly reflected in the behaviors recorded, and the success or failure of treatment is evident from changes in the record.

In addition to the monitoring of treatment procedures and pinpointing of treatment goals, behavior observation and recording assist the therapist in choosing those procedures which might be most effective in producing behavior change. Observation and recording may provide information about the particular environmental stimuli which are maintaining certain behaviors. The therapist is given details as to how the environment represents a context for his client's behavior, some of the situations in which the behavior appears, and some of the events which may be reinforcing maladaptive behaviors or limiting the opportunity for more adaptive behaviors to occur (Kanfer, 1967).

Bierman (1969) has pointed out the "relative neglect of research in the parent-child therapy area (p. 349)." He indicates that, "this neglect is probably due to the complexities of controlling for the simultaneous impact of two parents, teachers, and also the two different therapists who typically collaborate on a child guidance clinic case (p. 349)." On the positive side he indicates that, "twin issues are opening up for investigation: the modification of interpersonal behavior repertoires of child care agents via modeling and behavior-shaping procedures and the effect of the modified behavior repertoires on children (p. 349)."

The procedures and rationale described in the present paper were developed to meet the observing and recording needs of professionals involved in parent-child therapy, both in an applied and research context. As with most procedures, it reflects the efforts of other workers in the field. Theory and techniques concerning the observation and recording of behavioral interactions, as described in this paper, draw heavily on the work of Dr. Gerald Patterson and his co-workers (1968, 1969) and Dr. Sidney Bijou (1955, 1957, 1958). The idea for reproducing analogs of parent-child interactions was suggested by Dr. Constance Hanf, who has extensively studied such interactions (1968).

Although the particular recording procedures to be described were developed specifically for the study of parent-child interactions, with some modifications they have a more general applicability within any context in which the therapist is concerned with dyadic dimensions.

Rationale for Present Procedures

Behavioral recording procedures have varied along the following dimensions: recording discrete responses versus recording general classes of responses; recording behaviors continuously versus behavior sampling; and recording behaviors in isolation versus recording responses within the context of antecedent and/or consequent events.

Discrete versus General Response Classes

Human social behavior is sufficiently variable and complex that it presents the observer-recorder with the problem of what to record and how to conceptualize the behavior that he is recording. Some researchers

(Lewis, 1959) have employed narrative approaches in which they observe and record in idiosyncratic detail all they can of an individual behavior and its context.

Most behavior therapists, however, employ a laboratory model in which they record presence or absence of selected behaviors (Gelfand and Hartmann, 1968). Presumably the selected behaviors have relevance to treatment goals.

While basically adhering to a procedure of recording selected behaviors, some therapists define behavior in discrete detail such as time out of seat, head banging, placing pegs in pegboard or responding with a vocalized imitative response to a vocalized model sound ă, (Marshall and Hegrenes, 1970). Other therapists define behavior in terms of response classes such as destructiveness, play, noncompliance, etc. (Mash and McElwee, 1971; Patterson et al., 1969).

The decision to utilize either discrete behavioral categories or general response classes should, in part, hinge on whether the information is to be used to evaluate results on one case alone (discrete categories would suffice) or used to evaluate results across cases. The present procedure employs response classes in order to facilitate comparisons across cases and to evaluate the relationship between demographic variables and parent-child interactions. Such comparisons would be impossible if the topographic features of the behavior categories were too specific.

The behavior classes in this procedure were arbitrarily selected because they provided relevant information about classes of behaviors that were frequently reported as concerns by parents, and had been observed to occur in naturalistic settings. The behaviors that fall into a particular class all possess some common features which are described below in the definitions of the behavior categories. For example, a particular child may bite, another may bang his head on the wall, and another may whine. All of these behaviors are recorded in the response class of "negative behavior."

The utilization of a response class recording procedure assumes that contingencies maintaining behaviors in a certain response class are similar. From a treatment standpoint, the question may be posed as follows: if one educates a parent to extinguish a child's negative behavior in the form of hitting, would the parent also respond appropriately to decrease his rate of biting and head banging? If, indeed, behaviors within a certain class are similar in terms of the relationship they have with certain features in the immediate environment, then the use of response classes provides a way of ordering and describing seemingly dissimilar contingency relationships within that environment.

Continuous Recording Versus Behavior Sampling

Recording of behaviors was facilitated in the present procedure through the use of a behavior sampling technique. Many recording procedures denote

the frequency with which all designated behaviors occur during a specified time interval. Such continuous recording becomes difficult when there are many high frequency behaviors that have been selected for recording.

An alternative to continuous recording is that of behavior sampling (Allen, Hart, Buell, Harris and Wolf, 1965; Wright, 1960). In the present procedure the time spent observing is divided into equal units each unit of 10-second duration. If more than one response occurs in that interval, only the last response to occur is recorded. No effort is made to record every response. The assumption behind behavior sampling is that those behaviors that are recorded will, over a period of time, be a representative sample of all the behaviors that occur in that observation period.

Behavior in Isolation Versus Behavior in Context

Wright (1960) in a review of observational studies from 1890 to the late 1950's reported that most observational studies involving children failed to relate the child behavior to a context of child-care agent behavior. He called for recording behavior in context: "Common psychological theory now says that for every response there is a corresponding stimulus and vice versa. It would seem to follow that the way to link actions with situations is to divide the behavior continuum...into integral units of behavior with its context (p. 101)."

Holland and Skinner (1961) have distinguished three possibilities for focus and recording. One can record only the response, for instance, of the child. Response records, or one-term contingencies, do provide a measure of a response, but omit accounts of the context in which the behavior is emitted. Two-term contingency records provide a measure of responses as well as either a measure of antecedent events or a measure of consequent events. The present procedure uses a three-term contingency record, providing descriptive accounts of antecedent stimuli, consequent events, and responses.

Description of the Matrices for Recording Parent-Child Interactions

The present recording procedures makes possible the recording of behaviors in relation to specified antecedent and consequent events in the environment. Records of a particular mother-child interaction are obtained by using the two matrices shown in Figures 1 and 2. Figure 1 shows the child's matrix, with seven possible antecedent mother-behaviors as row headings and six possible consequent child-behaviors as column headings. Figure 2 shows the (m)other's matrix, with six possible antecedent child-behaviors as row headings and seven possible mother consequent-behaviors as column headings.

Two recorders are used, one recording the mother's behavior as an antecedent and the child's behavior as a consequent (Figure 1), and the other recording the child's behavior as an antecedent and the mother's behavior as a consequent (Figure 2). Each recorder makes one mark in one of the matrix cells every 10 seconds, with only the last scoreable

Figure 1. · Interaction matrix for the child. Recordings are based on a 15-minute observation period. Circled numbers are used as examples (see text) and are not part of observed interaction.

CHILD'S CONSEQUENT BEHAVIOR RECORD

MOTHER'S ANTECEDENT BEHAVIOR — Mrs. Jones	John Jones: Compl.	Ind. Play	Ques.	Neg.	Interaction 10 sec.	No Response 10 sec.
Command	I (1) 1	𝍸 𝍸 𝍸 15		𝍸 5	III 3	
Question Command		𝍸 5		I 1		
Question		𝍸 𝍸 𝍸 II 17			𝍸 I (3) 6	
Praise						
Negative				III 3		
Interaction		𝍸 5				
No Response		IIII 4				I

Date: Mo 4 Da 10 Yr 70

Participant: A

Other's Present Not Recorded: A

Location: LAB - (0); HOME - 2; SCHOOL - 3

Session Length: Hr 0 Min 15

Session No.: 1

Situation Code: A

Matrix Type 0

Family ID: 7267

Recorder: LT

Figure 2. Interaction matrix for the mother. Recordings are based on a 15-minute observation period. Circled numbers are used as examples (see text) and are not part of observed interaction.

FAMILY NAME Jones

(M)OTHER'S CONSEQUENT BEHAVIOR RECORD

CHILD'S ANTECEDENT BEHAVIOR	Command	Command Question	Question	Praise	Neg.	Inter. 10 sec.	No Respon 10 sec.
Compliance	I 1			(2)			
Independent Play	𝍸 𝍸 IIII 14	𝍸 5	𝍸 𝍸 𝍸 III 18			IIII 4	III
Competing Behaviors	𝍸 5	II 2	𝍸 5			𝍸 I 6	
Negative	IIII 4	I 1			IIII 4		
Interaction	𝍸	I (4) 1	II 2				I
No Response							I

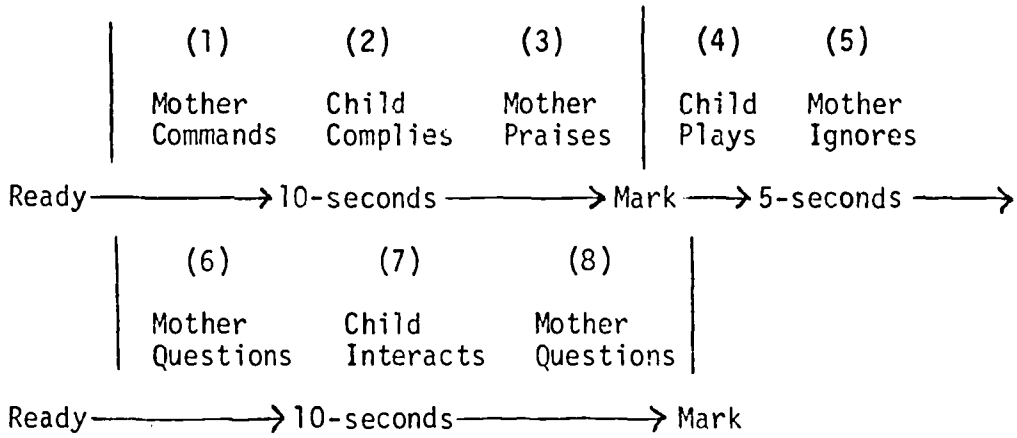
Date Mo 4 Da 10 Yr 70 Participant B Other's Present Not Recorded A

Location LAB - (1) HOME - 2; SCHOOL - 3 Session Length Hr 0 Min 15

Session No. 1 Situation Code A Matrix Type 1 Family ID 7 2 6 7

Coder KA

behavior unit to occur during the interval being recorded. Following the recording for a 10-second interval, there is a 5-second pause, and then the behavior occurring during the next 10-second interval is recorded. For example, consider a mother-child interaction in which the following sequence of behaviors occurred:



During the first 10-second interval, the mother gave a command (1), the child complied (2), and, the mother praised (3). The recorder on the child's matrix would make a hashmark in the cell corresponding to mother command-child complies (as indicated by the circled 1 in Figure 1). The recorder on the mother's matrix would make a hashmark in the cell corresponding to child complies-mother praises (as indicated by the circled 2 in Figure 2). At the end of the second 10-second interval, the child's-matrix recorder makes a mark in the cell mother questions-child interacts (circled 3, Figure 1), and the mother's-matrix recorder makes a mark in the cell child interacts-mother questions (circled 4, Figure 2). This scoring procedure continues for the duration of the designated observation period, and the two matrices taken together give an account of the three-term contingency shown for this mother-child interaction.

In order for the present recording system to be meaningful, it was necessary to decide upon certain functional definitions for each of the mother and child behaviors included in the matrices. These functional definitions are given below:

Standard Behavior Categories for the (M)other

1. Command

In this category are direct commands, or statements which include imperatives:

a. "Come..."
b. "Let me..."
c. "Put this..."
d. "I want you..."

A direct command may be either specific:

e. "Write your name."

or general:

f. "Go and play."

In either case, they are scored as commands.

Note: Unless there is an accompanying verbalization, a gesture will not be scored as a command. Thus, motioning for a child to come without saying for him to come, will not be scored as a command.

2. Command-Question

A command-question is a suggested or "implied" command which includes an interrogative:

a. "Will you hand me...?"
b. "Shall we...?"
c. "Why don't you...?"
d. "Can you...?"
e. "Would you like to...?"

As with direct commands, in order for a command-question to be scored, there must be an accompanying verbalization.

3. Question

Scored in this category are any direct questions not of the command-question type.

a. "What...(color is this)?"
b. "What...(would you like to do)?"
c. "Where is...?"
d. "Who...?"
e. "How does...?"
f. "When did...?"

4. Praise

The praise category includes both verbal statements and nonverbal actions indicating encouragement, acceptance, and/or approval of the child's behavior.

a. Verbal

(1) "O.K."
(2) "Good..."
(3) "That's fine..."
(4) "I like that..."

b. Nonverbal

(1) Pat on back
(2) Hug
(3) Kiss

(4) Clap
(5) Head nod
(6) Smile

Some judgement can be used in interpreting context and tone of voice in scoring praise. A general rule of thumb is that most of the above statements when they follow a specific task or behavior on the part of the child, are scored as praise. For example, if on completion of a task the mother says "O.K.", score as praise. If, on the other hand, the child asks if he can play, and the mother says, "O.K.", score as interaction for the mother.

5. Negative

The negative category includes both verbal statements and nonverbal actions indicating discouragement, non-acceptance, and/or disapproval of the child's behavior.

a. Verbal: Negative verbal statements may take two forms. They may be either

(1) direct disapproval or criticism:

(a) "No don't..."
(b) "Stop..."
(c) "Quit..."
(d) "Bad boy..."
(e) "That's not right..."
(f) "That's all wrong..."
(g) "You can do better than that."
(h) "Don't do it that way."
(i) "You make me sick!"
(j) "I don't like that."

(2) or implied criticism or threat:

(a) "You're acting like a two year old!"
(b) "If you don't stop...you'll get it!"
(c) "You'd better watch it!"
(d) "One more time and you're in trouble!"
(e) "Your father won't like that when he hears about it."

b. Nonverbal: May be either

(1) direct

(a) spank or hit
(b) pinch
(c) yank
(d) shove back in chair
(e) shake head "no"
(f) frown

(2) or a threat

(a) raised hand
(b) shaking of finger at child

Note: Negative behavior on the part of the mother takes precedence over commands or question-commands; i.e., if the mother says, "You get over here!", in a quite threatening manner, this is scored negative behavior on her part, rather than a command.

6. Interaction

Interaction is an attempt to initiate or maintain some type of mutual contact. Interaction is scored only when, during a 10-second interval, no other scoreable response occurs. For example, if the mother says, "Get me a toy," and then plays with the child, her response for that 10-second interval is scored as a command rather than interaction.

Interaction may be either verbal or nonverbal.

a. Verbal: Comments that may be neutral, positive, or descriptive but that contain no criticisms, commands, or questions. The mother in some way communicates attention or expresses interest.

(1) "That's a big bridge you're building."
(2) "You sure are running fast."
(3) "There are some toys in the box."
(4) "We'll be going home when we're finished."
(5) "mmm'hmm"

b. Nonverbal

(1) holding parts of the same toy
(2) handing an object to the child
(3) smiling at the child (in this case, eye contact with the child must occur; if the child does not look at the mother when she is smiling at him, her response is scored as "no response.")
(4) physical contact other than negative

7. No Response

No response is scored when, during the 10-second interval, there is no occurrence of responses in any of the above categories.

a. mother plays silently with a toy while child plays with another toy.
b. mother looks out the window.
c. mother looks through her purse.
d. mother sits and smokes while child plays on floor.
e. mother looks at child who does not look at her.

Standard Behavior Categories for the Child

1. Compliance

Compliance is scored for the child only when his behavior is in response to the mother's command or command-question. Thus, a child's answering a mother's question should not be scored as compliance, but as interaction. Any response ranging from approximation to full compliance may be classified as compliance. Even if a child is having a tantrum, if he is complying at the same time, his response is scored as compliance.

a. mother tells child to pick up the toys and child walks toward the toy.
b. mother tells child to draw a man and child seems to be trying to draw a man, and not his name, numbers, etc.

If the child is given a command-question relating to a specific defined task (i.e., "Pick up those toys"), then compliance is coded every 10-seconds for the duration of the task.

However, if the command or command-question is not specifically task oriented, but rather play oriented ("Why don't you play for awhile?"), then compliance is coded for the 10-seconds only in which the command-question was given. After this, the child's behavior should be classified as independent play, or contingent upon new cues from the mother.

If several commands are given during the 10-second interval, the child's response to the last command given is the response recorded.

2. Competing Behaviors

Noncompliance, or competing behavior, may take several forms. It will be noted that on the child's form there is no category for competing behaviors as such. It is assumed that any of the child's behaviors following a command or a command-question that are not compliance are behaviors competing with compliance. The child's form facilitates recording of what the child does when he is not complying (i.e., play, ask questions, has a tantrum, suggests another activity, doesn't respond, etc.).

On the (m)other's form competing behavior as a child-antecedent response is scored only once during the 10-second interval in which the command or command-question is given. Following that, noncompliance is scored as competing behavior only if:

a. the mother gives another command.
b. the mother gives an antecedent which, although not a command, is task-related:

   (1) "Isn't it fun to pick up the toys?"
   (2) "If you hurry with your pictures, we can go home."
   (3) "The toys are waiting for you."

3. Independent Play

Independent play is recorded for the child when he is playing alone

and not interacting with the mother. The child must be engaged in some form of play for the response to be recorded as independent play. Independent play following a command or command-question is scored as independent play as a child-consequent and as competing behavior as a child-antecedent.

a. child sits with back to mother and plays with a toy.
b. on child's matrix: Mother gives a command, child continues to play with toy as before.
c. child silently rummages through box of toys.
d. child, ignoring mother's question, plays with light switch.

4. Negative

The negative category for the child includes both verbal statements and nonverbal actions indicating anger, refusal, or discouragement. Negative behavior may be either nonvocal or vocal.

a. Nonvocal:

(1) tantrum - lie down on floor and kick
(2) hit - self, other person, object
(3) kick
(4) push
(5) throw something at something or at someone else
(6) biting self or someone else
(7) pulls away from someone's grasp

b. Vocal:

(1) tantrum - with screaming
(2) refusal - "No...!" In order for "No!" to be scored as Negative it must follow either a command or a command-question.
(3) verbal abuse - swearing, name-calling, etc.
(4) crying, whining

If the child is engaging in any of the above types of behavior following a command or a command-question, but is actually complying at the same time, then compliance and not negative behavior is scored.

On the (m)other's form, negative takes precedence over competing behaviors as a child-antecedent. Example: During the 10-second interval, the mother gave a command and the child responded by turning from her and whining, "I don't want to." This is scored as a negative child-antecedent for the mother's next response in that 10-second interval.

5. Interaction

Interaction is an attempt to initiate or maintain some type of mutual contact. Interaction is scored only when, during a 10-second interval, no other scoreable response occurs. It should be noted that interaction

need not be two-way. The child may be attempting to interact with the mother, but she need not reciprocate. Interaction may be either verbal or nonverbal.

a. Verbal: comments that may be neutral, pleasant, or descriptive

(1) the child's answering a question
(2) the child's giving his mother a command
(3) the child's naming pictures while he and his mother "read" a story book

b. Nonverbal:

(1) the child's smiling at his mother (in this case only, she must either initiate or reciprocate the eye-contact; otherwise, the child's response is not scored as interaction).
(2) the child's handing an object to his mother
(3) physical contact other than negative
(4) holding on to same object as mother or playing with same toy as mother. If mother and child are in close proximity, but they are playing independently from each other, this is not scored as interaction.

6. Question

The question category, as a child response, appears only on the child's form. If one is recording the child's antecedent behavior on the (m)other's form, a child's question is recorded as competing behavior if it follows a command or command-question, or as interaction if it does not follow a command or command-question.

7. No Response

No response is scored when, during the 10-second interval, there is no occurrence of responses in any of the above categories.

a. mother asks child a question and child does not answer; he just looks at her.
b. mother tells child to do something and he wanders aimlessly around room.
c. mother talks to child and child looks away.

The matrix system just described groups specific behaviors into broad response classes. For a more detailed and useful clinical report, it is valuable for the observer to describe some detail after a session to clarify the behaviors that were recorded. For instance, it might be important to note that the majority of a child's negative behavior was biting himself on the hand, rather than hitting or biting someone else.

It will be noted that at the bottom of each behavior record form there are spaces for identifying the particular observation period. On the child's form, "Participant" refers to the person whose behavior is being recorded

as a consequent (usually the child). On the (m)other's form, the space for "Participant" is for identifying the person whose behavior on that form is being recorded as consequent (usually the mother, but could be the father, a sibling, a therapist, etc.).

For some purposes it is desirable to ask individuals other than those being recorded to be present in the room with those being recorded; i.e., a record may be kept of the mother-child interaction when a therapist is in the room, etc. The space marked "Others present not recorded" is for indicating this kind of situation.

The space labeled "Situation code" is for designating which of a number of commonly used standard situations was chosen for this particular session. It has been found useful to employ certain standard situations in the clinic where this recording system was developed. Any number of such situations could be designed for use in any setting. Asking the mother and child to interact in the same kind of situation before and after therapy provides information with which to evaluate the success of the therapy. Standard situations are necessary if one is to evaluate the interaction of the same pair over time, or if one is to compare one pair's interaction with other parent-child pairs.

The "Location" label at the bottom of the forms indicates in which of three likely observation areas the particular observation is made. Locations other than Lab, Home, or School are, of course, possible.

The space marked "Session number" is for indicating in which session the observation is being made, given the same participants, location, and situation.

"Matrix Type 0" and "Matrix Type I" are simply identification statements for computer analysis. Matrix Type 0 indicates that this is the seven-by-six record form, and identifies it as the child's form. The "Family ID" notation is, similarly, to identify the particular case for computer analysis.

The particular matrix forms described in this paper were designed for use in a particular clinic setting; they are presented as examples of possible ways to implement the general recording principles described earlier in this paper.

Reliability

The traditional procedure for analyzing reliability between two observers is percent agreement (Wright, 1960). The formula used in this report is two times numbers of agreement/sum of tallies from both coders.

This report on reliability was obtained using three trained coders paired as follows: coders A and B, A and C, and B and C. These coder pairs observed twenty-two mothers and their normal preschool children in a free-play situation for intervals of ten minutes each. The percent agreement figures are based on a total of 1,536 observations on the child's consequent

behavior record, and 1,078 tallies on the mother's consequent behavior record.

Combining the agreement figures of the three coder-pairs and evaluating the percent agreement per category on the child's consequent behavior record the range of agreement was as follows: compliance, 93% from a total of 328 tallies; independent play, 87% (256 tallies); questions, 31% (13 tallies); negative behavior, no tallies; interaction, 95% (932 tallies); no response, 0 agreement from a total of seven tallies.

It is clear that three categories (question, negative behavior, and no response) represent very low child response rates among our reliability sample. This raises questions about coder reliability for low rate behaviors. However, the bulk of the analyses for our sample involve the categories in which the percent agreement was 87% or better.

Essentially, similar results were obtained from a total of 1,078 tallies on the mothers consequent behavior record. Combining the tallies of the two coder pairs who recorded with the mother's consequent behavior record, the percent agreement in each of the categories were as follows: commands 92% (from a total of 166 tallies); command-question, 78% (54 tallies); questions, 94% (179 tallies); praise, 84% (76 tallies); negative, 79% (20 tallies); interaction, 93% (352 tallies); no response, 96% (231 tallies).

The matrices were constructed to evaluate contingent relationships between consequent and antecedent behaviors. Percent agreement based on matrix cell concordance evaluates antecedent categories and consequent categories as a unit. In this way matrix cell agreement for a given tally is obtained when two coders agree on both a given consequent behavior category and a corresponding antecedent behavior category. On the child consequent behavior record, the overall matrix cell agreement was 81% for coders A and B, 87% for A and C, and 83% for coders B and C. On the mother's consequent behavior record the matrix cell agreement was 84% for coders A and C, and 78% for coders B and C.

An Example of Data Utilization for an Individual Case

The Case of John Jones

Mrs. Jones was referred to the clinic by John's nursery school teacher, to whom Mrs. Jones had gone for help in finding an agency that would do something with John's behavior. When interviewed at the clinic, Mrs. Jones reported that her son, John, age 4 years 2 months, was impossible to manage at home, although the nursery school teacher has told Mrs. Jones that John is no problem at school, rather, he is a "delight." Mrs. Jones, when asked to describe in what ways John is impossible, said that John is very disobedient; that he has a "mind of his own;" that when she tries to get him to mind her, he screams and hits at her. She elaborated by reporting that he sometimes looks at her daringly when he decides he doesn't want to obey; and at other times he acts as if he doesn't hear her. She asked if he got his bad disposition from her side of the family and mentioned that she had a father who was an alcoholic. She also asked if some children are just born bad and have a mean streak in them.

Mrs. Jones was asked to play with John in a playroom setting in the clinic, just as she would do "at home when the two of you are alone and have a few minutes to play together." Recorders observed the interaction through a one-way mirror and the matrices (Figures 1 and 2) describe this first parent-child interaction.

Several observations can be made about this interaction. Turning to the child's record (Figure 1), it should be noted that the majority of John's responses are characterized as independent play, with some negative behavior. He shows nearly no compliance, although his mother gave many commands. Although Mrs. Jones asked John many questions, he seldom answered (interaction), but continued playing.

Turning to Mrs. Jones' record, it is evident that Mrs. Jones' most typical way of relating to John in this session was to give a command, a command-question, or to ask a question. Since this session was structured by the therapist to be a play session, the large number of commands given by the mother might indicate excessive directiveness. Although the behavior record does not clearly pick up this point, the interaction was frequently that of John beginning to play with something and Mrs. Jones than telling him to put it somewhere or her asking him a question about it. This can be seen on the record form as the child's independent play being typically followed by a command or question from the mother. Some of Mrs. Jones' questions were of the kind that a four-year-old would find difficult to answer (i.e., "What kind of a shoe lace is that?"). Mrs. Jones used no praise with John, either contingently or noncontingently. When John engaged in negative behavior, Mrs. Jones interacted with this by giving more commands or by criticizing and/or threatening him. Mrs. Jones also interacted with competing behaviors, which may partially explain why John does not obey commands from his mother. Her firing one command after another also does not allow John time to comply. It is important to note that John's teacher does not have difficulty getting John to comply at school. From the records, it is clear that John is beginning to "tune his mother out," and that she is responding to this by increasing her efforts to make him respond to her.

Initial treatment goals would include the following:

1. Teaching Mrs. Jones how to interact with John in a play situation by describing, commenting, or silently playing with John, keeping questions and commands at a minimum. Mrs. Jones should be taught to praise John's play products or processes, letting him take the lead.

2. Mrs. Jones should be taught to ignore John's tantrum behavior when it does occur and to not chase after him in a "provoking" manner.

3. Mrs. Jones should be taught how to stimulate John's talking to her and initiating approaches to her.

4. A later treatment goal would be to teach Mrs. Jones how to give a command and how to follow through in such a way to secure compliance from John.

Mid-therapy, post-therapy, and follow-up sessions should be planned with Mrs. Jones for the purposes of monitoring the progress and outcome of treatment.

Summary and Conclusions

The matrix form described in this paper provides a way of recording the behavior of one person in the context of the behavior of another member of a dyad. The use of standard behavior observation recording procedures in the study of parent-child interactions may facilitate the development of therapy and intervention programs. Some of the reasons are as follows: 1) the actual record of an interaction may provide more reliable information about how a parent and child behave in relation to each other than the parent's report; 2) recording the interaction helps to pinpoint strengths and weaknesses of the parent-child interaction; 3) a record of the initial interaction facilitates the establishment of treatment goals; 4) interactions subsequent to the pre-therapy interaction can be used to monitor on-going treatment; 5) a record of the interaction at the conclusion of therapy, and at some later follow-up check point provides data by which to evaluate the short range and long range effectiveness of the treatment procedure; 6) a standard record allows for comparisons and study across cases, and the identification of relationships between demographic variables and patterns of parent-child interaction.

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